

Notice of Allowability

Application No.

10/710,451

Examiner

John J. Tabone, Jr.

Applicant(s)

KRISHNAMOORTHY ET AL.

Art Unit

2138

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the After Final amendment filed 01/24/2007.
2. ☒ The allowed claim(s) is/are 1-3,6-9 and 12-14.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____



GUY LAMARRE
PRIMARY EXAMINER

DETAILED ACTION

1. Claim 1-3, 6-9, and 12-14 are pending in the present application. Claims 4, 5, 10 and 11 have been cancelled.

Response to Arguments

2. The After Final amendment filed 01/24/2007 has been entered because it puts the present application in condition for allowance. Therefore, the Examiner withdraws the Final rejection of 10/27/2006 for claims 1-14.

EXAMINER'S AMENDMENT

3. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Attorney Steven A. Shaw on 02/02/2007.

The application has been amended as follows:

- a. Claim 1, lines 22-23, change "programming said programmable field" to "using said derived control signal".
- b. Claim 12, line 20, change "said rising edge triggered" to "a rising edge triggered" and "said falling edge triggered" to "a falling edge triggered".

Allowable Subject Matter

4. Claims 1-3, 6-9, and 12-14 are allowed.

The following is an Examiner's Statement of Reasons for Allowance:

The present invention relates to testing of integrated circuits, and more specifically to a method and apparatus for testing of modules operating with different characteristics of control signals using scan based techniques.

The claimed invention as set forth in independent **claims 1 and 7** recites a method and integrated circuit which have features, among others, such as: test logic that comprises a bit indicating whether said derived control signal is to be generated as a positive clock signal or a negative clock signal and an XOR logic gate receiving said bit and said clock signal and generating said derived control signal.

The prior arts of record teach a scan signal converting circuit 100 (i.e Park in view of Mangum) that can be programmed via user interface 60 to vary the delays as to change the phase of clock signals used for different modules (core 30, UDL, Fig. 1 of Park); Park et al. (US-6742151B2) and Mangum et al. (US-6744285B2) are examples of such prior arts.

The prior arts of record, however, fail to teach, singly or in combination, the limitations of **claims 1 and 7**, namely *the bit* indicating whether said derived control signal is to be generated as a positive clock signal or a negative clock signal and the *XOR logic gate* that receives *the indicating bit* and the clock signal to generate the derived control signal. As such, modification of the prior art of record to include the

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claimed *indicating bit* and *XOR logic gate* can only be motivated by hindsight reasoning, or by changing the intended use and function of the prior art themselves. Therefore, it is not clear that one of ordinary skill in the art at the time of the invention would have made the necessary modifications to the prior art of record to encompass the *indicating bit* and *XOR logic gate* set forth in the present application. Moreover, none of the prior arts of record, taken either alone or in combination, anticipate nor render obvious the *indicating bit* and *XOR logic gate* as set forth in **claims 1 and 7**.

The claimed invention as set forth in independent **claim 12** recites features, among others, such as: test logic that comprises a bit indicating whether said derived control signal is to be generated as said rising edge triggered or said falling edge triggered scan enable signal, a flip-flop coupled to receive said first control signal and being clocked on an inverted clock signal and a multiplexor selecting either the output of said flip-flop or said first control signal under the control of said bit.

The prior arts of record teach a scan signal converting circuit 100 (i.e Park in view of Mangum) that can be programmed via user interface 60 to vary the delays as to change the phase of clock signals used for different modules (core 30, UDL, Fig. 1 of Park); Park et al. (US-6742151B2) and Mangum et al. (US-6744285B2) are examples of such prior arts.

The prior arts of record, however, fail to teach, singly or in combination, the limitations of **claim 12**, namely *the indication bit*, *the flip-flop* and *multiplexor*. As such, modification of the prior art of record to include the claimed *indication bit*, *the flip-flop* and *multiplexor* can only be motivated by hindsight reasoning, or by changing the

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intended use and function of the prior art themselves. Therefore, it is not clear that one of ordinary skill in the art at the time of the invention would have made the necessary modifications to the prior art of record to encompass the *indication bit*, the *flip-flop* and *multiplexor* set forth in the present application. Moreover, none of the prior arts of record, taken either alone or in combination, anticipate nor render obvious the *indication bit*, the *flip-flop* and *multiplexor* as set forth in **claim 12**.

Hence, **claims 1-3, 6-9, and 12-14** are allowable over the prior arts of record. The Examiner agrees with the Applicant's arguments with regard to this feature in view of the arts of record; therefore, the Examiner favors the allowance of **claims 1-3, 6-9, and 12-14**. Any comments considered necessary by applicant must be submitted no later than the payment of the Issue Fee and, to avoid processing delays, should preferably accompany the Issue Fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

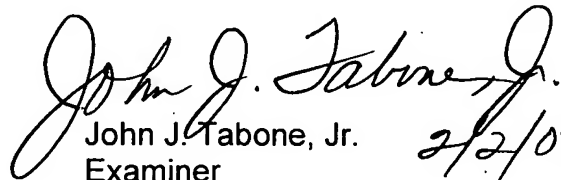
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John J. Tabone, Jr. whose telephone number is (571) 272-3827. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert DeCady can be reached on (571) 272-3819. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


John J. Tabone, Jr.
Examiner
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2/2/07